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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hideki Ichihashi

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FRISHAUF, HOLTZ, GOODMAN & CHICK, PC
220 Fifth Avenue
16TH Floor
NEW YORK, NY 10001-7708

EXAMINER

GILLESPIE, BENJAMIN

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/529,780	Applicant(s) ICHIHASHI ET AL.	
	Examiner BENJAMIN J. GILLESPIE	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-11, 13, 14 and 22-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-11, 13, 14 and 22-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 8-11, 13-14, and 22-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kube ('212) in view of Greco ('839), and in further view of Carlson et al ('110). Kube teaches a hot-melt adhesive based on an isocyanate-terminated prepolymer comprising the reaction product of polyisocyanate and a mixture of polyol comprising both crystalline and amorphous polyester (Abstract). In particular, patentee explains that the crystalline polyester is present in the polyol mixture between 40 and 94% by weight, exhibits at least 30% crystallinity, as measured by X-Ray diffraction, has a number average molecular weight between 3,000 and 7,000, and is the reaction product of hexamethylene glycol and adipic acid (Col 2 lines 12-17, 47-49, 54-55, 57, and 59).

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3. The amorphous polyester is present in the polyol mixture by as much as 40% by weight, has a number average molecular weight between 1,500 and 5,000, and is the reaction product of ethylene glycol, neopentyl glycol, and phthalic acid (Col lines 50-51, 65-67; col 3 lines 9, 14-16, and 45-46). Kube finally teaches that the composition may further comprise polyether polyol, and the polyisocyanate is present relative to the hydroxyl-functional material in an equivalent ratio ranging between 1.8 and 2.7 (Col 1 lines 19-21; col 42-45). However, patentee is silent in disclosing polycarbonate polyol present in the polyol mixture.

4. Greco also teaches hot-melt adhesives based on isocyanate-terminated prepolymers comprising the reaction product of polyisocyanate and a mixture of polyol (Abstract; col 3 lines 49-50). In particular, patentee explains that the polyol preferably consists of hexane-diol based polycarbonate polyol that has a molecular weight as low as 1,500, and can include up to 50% by weight polyester polyol, wherein said polyester is crystalline and amorphous (Col 1 lines 43-62, col 2 lines 12-19, 58-60, 66-68; col 4 lines 1-7, 54-60). Greco goes on to explain that by combining polycarbonate and polyester, it overcomes certain obstacles that arise when crystalline polyester is used alone such as material shrinkage, thereby reducing adhesion, and short cure times (Col 1 lines 43-47; col 3 lines 30-40).

5. Therefore, it would have been obvious to include the polycarbonate of Greco in the polyol mixture of Kube based on the motivation that in hot-melt adhesives based on crystalline polyester, it is preferred to include polycarbonate because it reduces shrinkage, thereby improving adhesion, it increases the amount of time for workability, and it is prima facie obvious to combine individually old ingredients for their known additive function, i.e. it is

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obvious to add a known ingredient for its known function; *In re Linder* 173 USPQ 356; *In re Dial et al* 140 USPQ 244.

6. Regarding the claimed amounts of crystalline polyester, amorphous polyester, and polycarbonate, although Greco teaches 50% polycarbonate polyol relative to the polyester, this amount is drawn to the crystalline polyester. Applying this limitation to Kube, i.e. 42-100% by weight crystalline polyester polyol, and 0-42% by weight amorphous polyester polyol as based on the ranges listed on column 3 lines 44-46, the relative amounts of each polyol would consist of:

22-50% by weight crystalline polyester polyol

0-42% by weight amorphous polyester polyol, and

22-50% by weight polycarbonate polyol.

7. Therefore Kube in view of Greco render obvious the ranges of claim 8, however neither Kube nor Greco teach molded products formed said composition that is useful in the semiconductor industry.

8. Carlson et al also teach polyamide hot-melt compositions that are molded in injection-molded machines, are useful in the semi-conductor industry, and it should be noted that polyester-amides encompass polyurethane compositions (Col 1 lines 16-19; col 3 lines 40-46). In particular, patentees explain that the hot-melt moisture cure compositions are preferred because they reduce the amount of toxic bi-products released into the environment compared to standard epoxy compounds, and said hot-melt compositions allow for over-molding or encapsulation of fragile compositions, such as thin strands of wire and electronic circuit boards.

9. As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the hot-melt composition, rendered obvious by Kube in view of Greco, in a molded product, specifically an electronic part based on the motivation that Carlson et al explain said compositions release less toxic bi-products and helps prevent any damage to said electronic part during application.

10. Finally, regarding the viscosity ranges of claims 8 and 28, based on analogous reactants and overlapping amounts, one of ordinary skill would reasonably expect the hot-melt adhesive rendered obvious by the prior art to exhibit the same properties.

Response to Arguments

11. Applicant's arguments filed with respect to the rejection of claims 8-11, 13-14, and 22-28, under 35 U.S.C. 103(a) as being unpatentable over Kube ('212) in view of Greco ('839), and in further view of Carlson et al ('110), have been considered but are not persuasive. Applicants argue that the claimed invention is patentable over the prior art because Kube fails to teach the inclusion of polycarbonate diol, the polyester polyol disclosed by Greco is not the same as Kube, and as a result one would not be motivated to combine the teachings of the prior art.

12. The examiner would like to point out that if Kube or Greco disclosed all of the relevant claim composition limitations, the claimed invention would be rejected under 35 U.S.C. 102(b), not 103(a); the references must not be solely argued but in view of one another. Furthermore, the determination that a reference is from a nonanalogous art is twofold. First, it is decided if the reference is within the field of the inventor's endeavor, and second it is determined whether the reference is reasonably pertinent to particular problem with which the inventor was involved. *In re Wood*, 202 USPQ 171, 174; *In re Clay*, 23 USPQ 2.d 1058. Both the first and second test for

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relevance are satisfied by the fact that both Kube and Greco are both drawn to hot-melt adhesives based on mixtures of crystalline and amorphous polyester, and Greco teach a method for reducing shrinkage in said hot-melt adhesives due to the presence of crystalline polyester.

13. Furthermore, the examiner acknowledges applicants' remarks concerning the prior art failing to disclose metallic substrates, and Carlson et al failing to teach polyurethane based hot-melt adhesives, however applicants remarks are not persuasive. While Carlson et al do not narrow the polyamides to polyurethanes or polyester-amides, one of ordinary skill would reasonably understand that condensation polymers, such as polyamides, are useful in the applications of Carlson et al, and said condensation polymers are the same class of polymer as Kube and Greco; therefore the examiner takes the position that one of ordinary skill would have a reasonable expectation of success in substituting the hot-melt adhesive of Kube and Greco in Carlson et al.

14. Regarding the metallic substrates, based on analogous reactants and amounts, one of ordinary skill would reasonably expect the hot-melt adhesive rendered obvious by the prior art to exhibit the same claimed viscosities, as well as bond to metallic substrates. Applicants' remarks stating otherwise are merely unsubstantiated opinions that have not been supported by any factual data clearly establishing the hot-melt adhesive of Kube and Greco would not exhibit the claimed properties; as a result the examiner maintains the rejection of claims 8-11, 13-14, and 22-28.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

16. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin J. Gillespie whose telephone number is 571-272-2472. The examiner can normally be reached on 8am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rabon Sergent/
Primary Examiner, Art Unit 1796

B. Gillespie